Edwards

Instructions
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OUTLET MIST FILTERS MF100, MF300

OUTLET CATCHPOTS CP100. CP300

MP MASTER
MA32944

SUPPLIED BY

PLASMA TECHNOLOGY

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CAUTION

When aggressive chemical gases or vapours are encountered HS versions of the MF300 and MF100 must be used.

General Description - MF Filters

The MF series of mist filters is used to capture oil mist which would otherwise be emitted to the atmosphere with effluent gas, either when gas ballasting or when pumping high gas throughputs. In general they can prevent atmospheric pollution and, in many cases, obviate the need for piped exhaust. Even if the nature of the gas being pumped and the local ventilation conditions necessitate the use of piped exhaust, the inclusion of a mist filter can prevent the discharge of oil mist to the surroundings.

Construction

The MF100 and MF300 mist filters (Fig. 1) consist of two or more fine pore filter elements in series with wire knitmesh packs which are mounted in steel containers. The fine pore elements are employed to capture oil mist and the knitmesh packs to catch any large droplets which can be entrained by the effluent gas after filtration. The filters include a spring loaded, pressure relief valve to prevent dangerous pressure build-up inside the pump and filter cases, should blockage of the filter occur. The level of trapped oil can be observed by means of a sight glass fitted in the filter body; a valve for draining the collected oil is provided. The filters are designed for mounting on the side of the rotary vacuum pump enabling a mechanical booster pump to be fitted on top of the rotary pump, if required. All filters can be remotely mounted, if necessary.

An accessory is also available for continuous return of trapped oil to the main pump reservoir. This can be advantageous if the nature of the gas load is such that the oil is uncontaminated.

Product description	Ordering No.
Model MF100 mist filter (supplied complete with all fittings in pack Code No. A462-03-010)	04-A462-03-000
MF100HS - Hermetically sealed filter	04-A462-07-000
Model MF300 mist filter - (supplied complete with all fittings in pack Code No. A462-04-006)	04-A462-04-000
MF300 HS - Hermetically sealed filter	04-A462-08-000

Spares	Ordering No.
Model MF100 filter element (two elements required)	14-A223-04-020
Model MF300 filter element (four elements required)	14-A223-04-021

Accessories

Oil return pack for MF100 mist filter	04-A500-04-000
Oil return pack for MF300 mist filter	04-A500-05-000

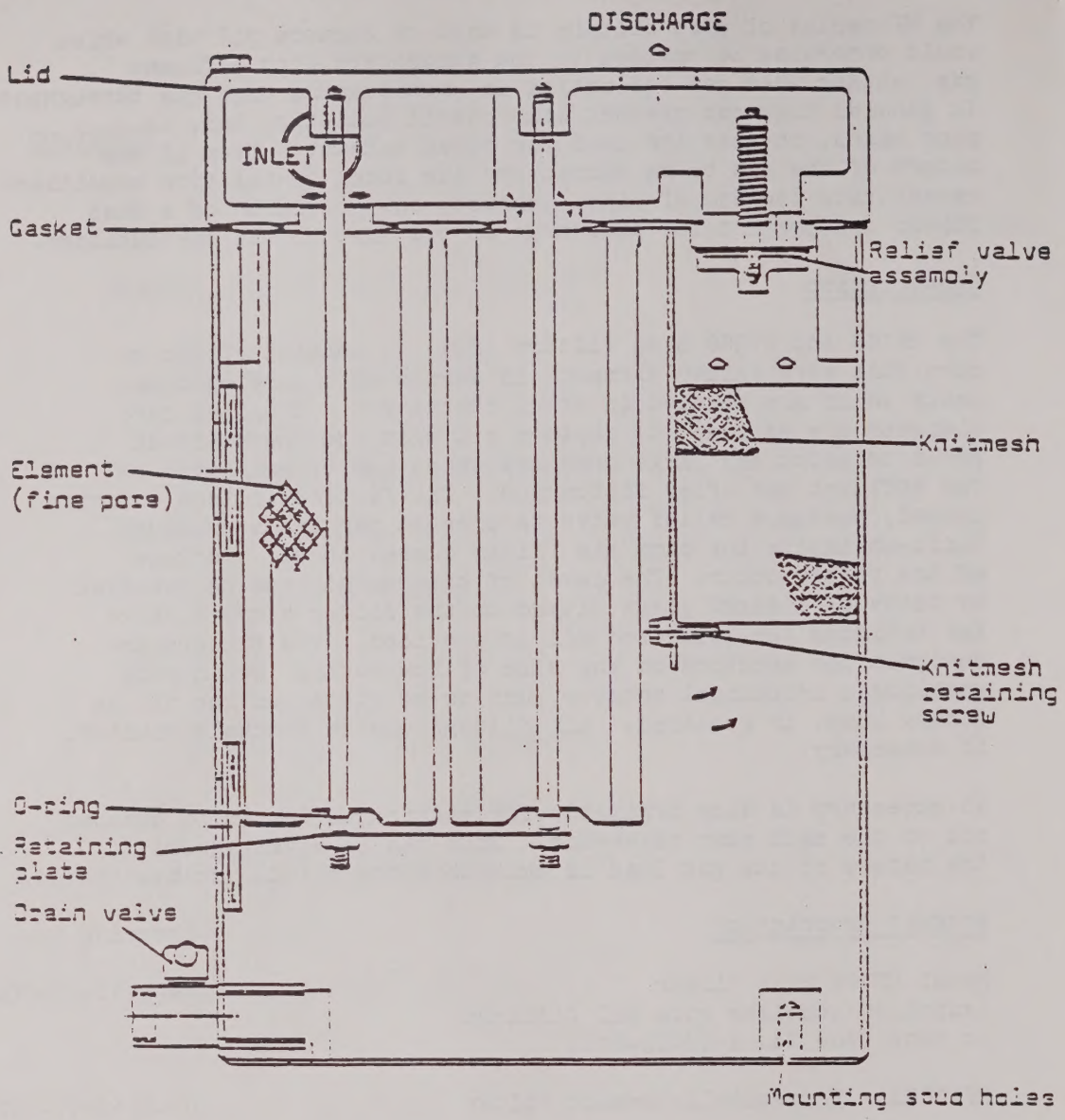

Fig.1 Sectional view of MF100 mist filter

Hermetically sealed (HS) filters

These versions are available for use with hermetically sealed pumps and are leak tight to better than 10^{-9} mbar ls^{-1}. Materials employed are more chemically resistant than those used for the basic filter. The hermetically sealed filters are therefore to be preferred when aggressive chemical gases or vapours are encountered.

The drain valve is replaced by an NW10 flanged adaptor.

Installation

Mounting the filter

(Use components supplied with filter in fitting packs Code Nos. 04-A462-03-010 or 04-A462-04-006). Refer to Figs. 2 and 3.

1) Attach the support bracket (1) or (2) to the pump runner using the two bolts provided.

2) Screw studs (B1 and B2) into threaded holes in filter base and tighten securely. (Use longer pair of studs for EM80 pump). Fit one nut on each stud and position nut about 30 mm from free end of stud.

3) MF100 filter: Connect elbow (4) to the pump outlet using centring ring (5), O-ring (6) and 'C' clamp, screws, washers supplied with pump. Do not fully tighten screws at this stage; ensure elbow is square with pump body.

   MF300 filter: Connect elbow (3) to the pump outlet using flange seal pack (6), 'C' clamp (4), screws (7) and washers (13), as shown, Fig.3. Do not fully tighten screws at this stage; ensure elbow is square with pump body.

4) Position an M10 washer over each of the slotted holes on the support bracket then lower the filter carefully so that the studs pass through the holes and washers.

5) Adjust nut on stud B1 so that filter flange is aligned vertically with elbow.

6) Adjust nut on stud B2 to ensure filter is aligned horizontally with elbow.

7) Repeat (5) and (6) to provide final adjustment.

8) Position nuts and washers on undersides of studs and lightly tighten.

   MF300 filter only - attach steady bracket (1) to pump and to filter.

9) Ensure filter is aligned correctly with pump and elbow then connect elbow to MF100 filter inlet using clamping ring (3), centring ring (5) and O-ring (6).

   Use seal pack (6), 'C' clamp (4), screws (15) washers (13) and nuts (14) to connect elbow to MF300 filter inlet.

10) Tighten all screws and nuts securely.

*Note: Remove blank from filter outlet - ensure drain valve is fitted and is fully closed.

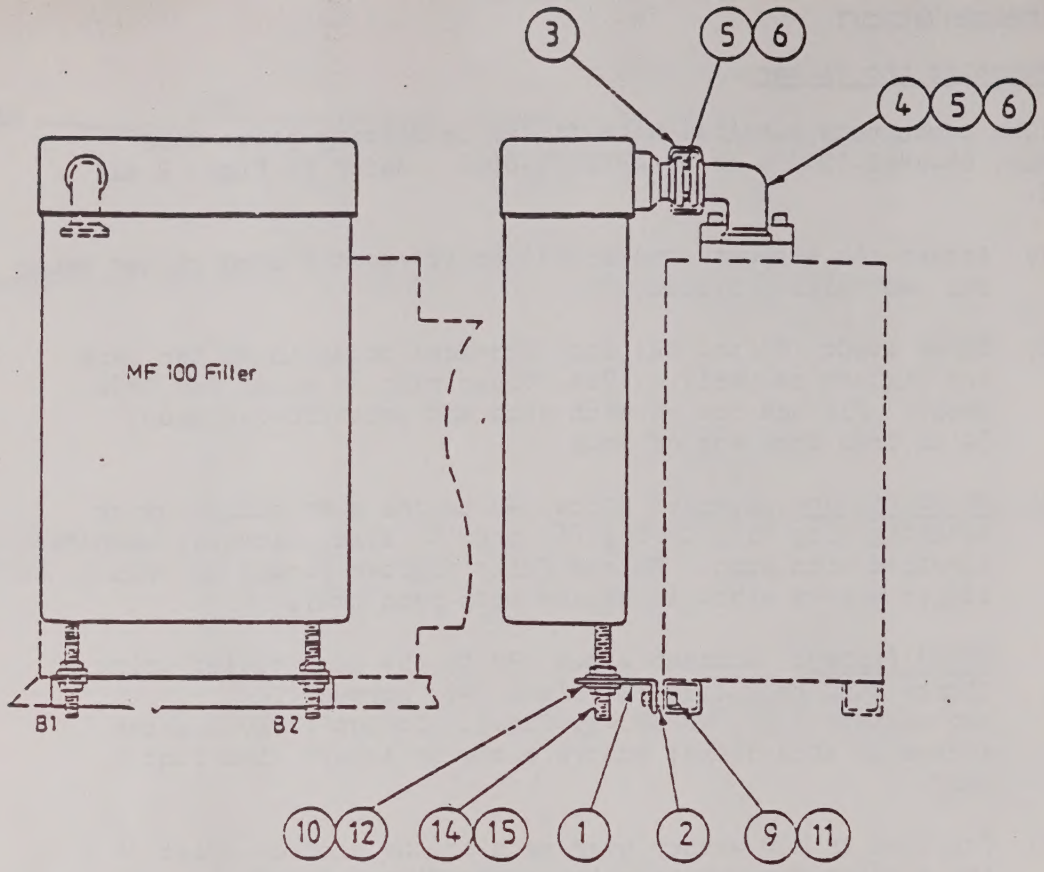

Fig.2 - Mounting MF100 mist filter on EM40 or EM80 pumps

Fitting Pack Code No. 04-A462-03-010 for MF100 filter

Item No.	Description	Code No.	Quantity
1	Support bracket	A462-03-009	1
2	Spacer	B278-04-021	4
3	Clamping ring, NW25	C105-14-001	1
4	Elbow, NW25	C105-14-010	1
5	Centring ring, NW25	C105-14-081	2
6	O-ring	H021-24-005	2
7			
8			
9	Screw, M8 x 35mm	21807-2414	2
10	Nut, M10	21896-0211	4
11	Washer, M8	21898-0210	2
12	Washer, M10	21898-0711	4
13			
14	Studding M10 x 70mm	31482-3310	2
15	Studding M10 x 100mm	31482-3310	2

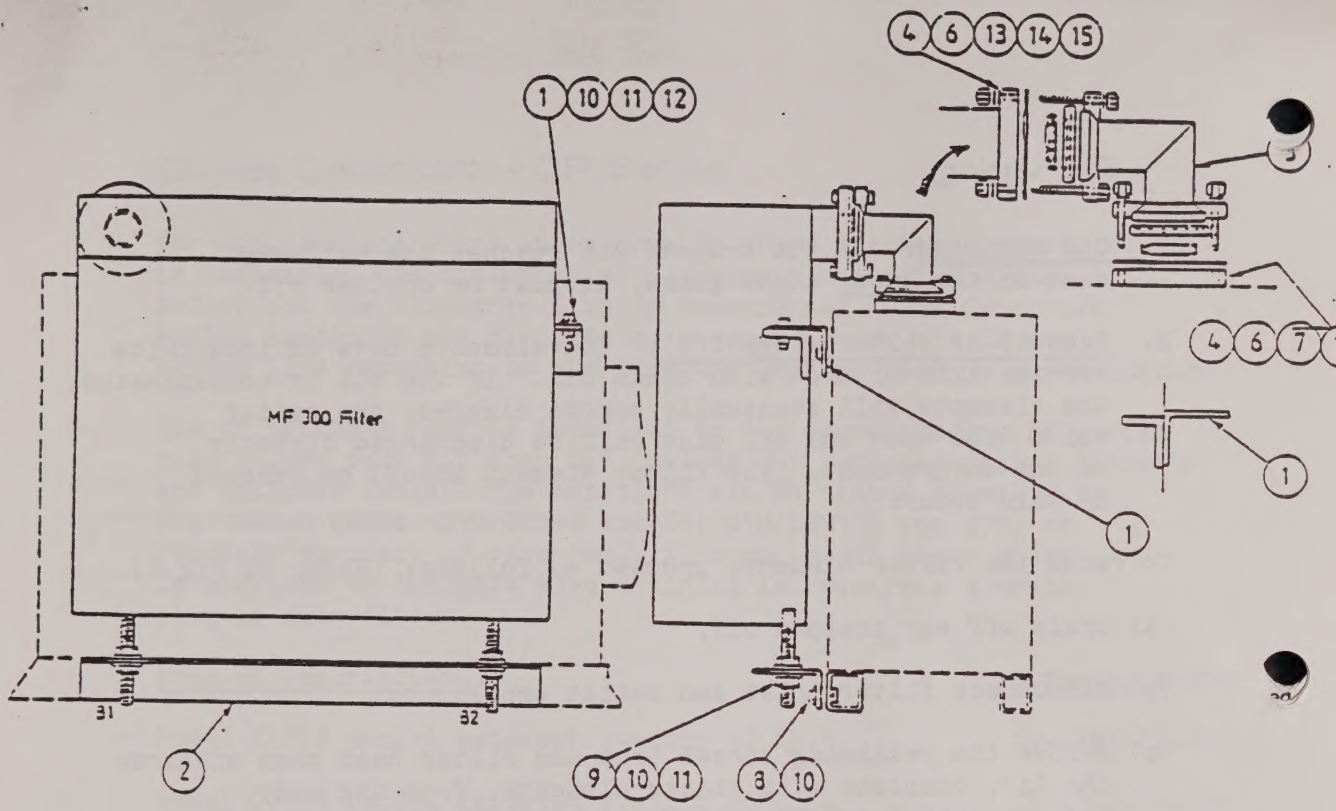

Fig.3 - Mounting MF300 mist filter on EM175 or EM275 pumps

Fitting Pack Code No. 04-A462-04-006 for MF300 filter

Item No.	Description	Code No.	Quantity
1	Steady bracket	A462-04-005	1
2	Support bracket	A462-04-004	1
3	Elbow, NW40	C105-16-010	1
4	'C' clamp, NW40	C110-05-040	2
5	-	-	-
6	Flange seal pack, size 40	3271-58-161	2
7	Screw, M8 x 35mm	21807-2414	2
8	Screw, M10 x 40mm	21807-2455	2
9	Studding, M10 x 90mm	32582-3110	2
10	Washer, M10	21898-0711	9
11	Nut, M10	21896-0211	5
12	Screw, M10 x 30mm	21807-2453	2
13	Washer, M8	21898-0210	4
14	Nut, M8	21896-0210	2
15	Screw, M8 x 40mm	21807-2415	2

Servicing

1. Oil draining: If the trapped oil reaches the half-way mark on the lower sight glass, it must be drained off.

2. Renewal of filter element(s): The elements have an indefinite service life if used with clean oil. If the oil is contaminated, the elements will eventually become clogged, the relief valve will open and oil mist will be discharged directly to the environment. The filter element should be renewed if this occurs.

To renew the filter element, proceed as follows: (Refer to Fig.1).

(a) Drain off any trapped oil.

(b) Disconnect filter inlet and outlet connexions.

(c) Remove the retaining screws from the filter head then withdraw the lid, complete with filter elements, from the body. The element(s) can be detached by removing the nuts and retaining plate from the studs.

Note: When fitting replacement element, tighten nuts on studs sufficiently to provide effective sealing only - do not distort face of element.

(d) Examine the knitmesh and wash in GENKLENE (or similar cleaning fluid), if dirty or contaminated.

(e) Prior to re-assembling the filter, examine all O-rings, seals and gaskets and renew if damaged or deteriorated.

Outlet Catchpots - CP Series

For applications where an externally piped discharge system is desirable, the inclusion of a catchpot between the pump outlet and the discharge line is recommended. The CP series outlet catchpots are designed to prevent condensate in the outlet line returning to the pump and causing serious contamination.

The CP catchpot body is identical to the corresponding MF series mist filter body but does not include the internal filter elements and knitmesh packs. The catchpots can be fitted directly to the vacuum pumps (E1M/E2M40 and 80; E1M/E2M175 and 275) or remotely mounted, if required. A 'high level' sight glass is provided to indicate when draining is required; a drain plug is also fitted.

Product description:	Ordering number
Model CP100 outlet catchpot (weight 12 Kg)*	04-A461-03-000
Model CP300 outlet catchpot (weight 28 Kg)+	04-A461-04-000
* Supplied complete with all fittings in pack	04-A462-03-010
+ Supplied complete with all fittings in pack	04-A462-04-006

Mounting

Procedure is identical to that for the MF filter, as described on page 2 and shown in Figs. 2 and 3.

Servicing

The condensate must be drained when the level reaches the half-way mark on the upper sight glass on the catchpot. Use the drain valve located at the base of the catchpot.

COMMUNICATION WITH EDWARDS

Any communication relating to the subject of this instruction should be addressed to Edwards High Vacuum or to the supplier from whom it was purchased.

Please specify:

1) the model, serial number and code.

2) the date of purchase.

3) your order number and the suppliers sales reference.

Equipment MUST NOT be returned to the supplier without prior arrangement.

IMPORTANT Health and Safety

Under Section 3 of the Health and Safety at Work Etc Act 1974 every employer has a duty to conduct his business so as not to expose persons not in his employment to risks to their health and safety. When goods are returned to the supplier, therefore, warning must be given if their usage is likely to render the equipment hazardous in any way. Your attention is drawn to FORM HSC001 attached.

Edwards High Vacuum and its distributors reserve the right to refuse acceptance of any equipment returned which they have reason to believe may be hazardous.

Damage in transit

If any damage has occurred in transit, it is important to inform both the carrier and the supplier within three days of delivery.

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Tel: 0293 28844
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PROCEDURE FOR RETURNING CONTAMINATED PUMPS TO EDWARDS HIGH VACUUM OR EDWARDS HIGH VACUUM DISTRIBUTOR

When returning a pump to EHV, the following procedure should be followed:

1. All fluid **must** be drained prior to despatching the pumps.
2. All pump outlets must be sealed with suitable blanking covers or PVC tape.
3. All accessories should be removed and if they require servicing, sealed in heavy-duty polythene bags and secured to the pallet with the pump.
4. Inlet and outer mist filters should be removed. All filter elements **must** be removed and disposed of as contaminated waste.
5. Any openings left by removing accessories must be sealed with suitable covers or PVC tape.
6. Pumps and accessories must be sealed in a heavy duty polythene bag and securely strapped to a suitable pallet *(the dimensions of which should not exceed 510mm by 915mm).*
7. The pallet must be labelled in accordance with current Packaging and Labelling Dangerous Substances regulations 1978 (SI No. 209) and subsequent amendments. At the present time (1985) the following labels should be used:

MAY CONTAIN TOXIC OR CORROSIVE CHEMICALS

8. The Service Department at EHV or EHV Distributor must be notified in writing of the nature of the hazard, the name of the carrier and anticipated delivery date, using Form HSC 001. This should be either Faxed *(Fax No. 0293 33453)* or sent by 1st class post to ensure that we have this information before we receive the equipment.
9. A copy of form HSC 001 should be handed to the carrier who must be informed that the cargo may be contaminated and who should present this copy of HSC 001 with the delivery note at EHV.
10. It is recommended that such pumps should only be transported in vehicles where the driver is in a separate cab, *eg open back lorry.*
11. Failure to comply with this procedure will lead to delays in servicing the equipment.

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Edwards SERVICE
Edwards High Vacuum
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W. Sussex RH10 2LW
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HEALTH AND SAFETY CLEARANCE FORM HSC 001

1.0 This form must be used when returning pumps and equipment for service at EHV or EHV distributor as per EHV procedure.

2.0 A completed copy of this form should be Faxed *(Fax No. 0293 33453)* or sent by 1st class post to ensure that we have this information before we receive the equipment.

A further copy should be handed to the carrier with the equipment.

3.0 Failure to complete the form or comply with the procedure will lead to delays in servicing the equipment.

4.0 Please complete the following sections:

4.1 Pump/Equipment Type .....

4.2 Serial No. .....

4.3.0 Details of all substances pumped.

4.3.1 Chemical names:

(a) .....

(b) .....

(c) .....

(d) .....

4.3.2 Precautions to be taken in handling of these substances:

(a) .....

(b) .....

(c) .....

(d) .....

4.3.3 Action to be taken in the event of human contact or spillage:

(a) .....

(b) .....

(c) .....

(d) .....

4.4 Any further information which you consider relevant:

4.5 Please complete section 4.5.1 if substances are not toxic or hazardous or 4.5.2 if they are.

4.5.1 I hereby confirm that the equipment specified above has **not** pumped or come into contact with any toxic or hazardous substances and that the equipment has been drained of lubricant.

Signed: .....

Name: .....

Position .....

For and on behalf of: .....

Date .....

4.5.2 I hereby confirm that the only toxic or hazardous substances that the equipment specified above has pumped or been in contact with are named above, that the information given is correct and that the following actions have been taken:

1. The equipment has been drained of lubricant.
2. The inlet/outlet ports have been sealed and the equipment has been securely packed and labelled in accordance with EHV procedure.
3. The carrier has been informed of the hazardous nature of the consignment.

Signed: .....

Name: .....

Position: .....

For and on behalf of: .....

Date: .....

4.6 Carrier to be used: .....

Delivery date to EHV: .....

IMPORTANT

Before returning any product for service this form must be completed and sent to the Edwards company or official distributor undertaking the service.

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